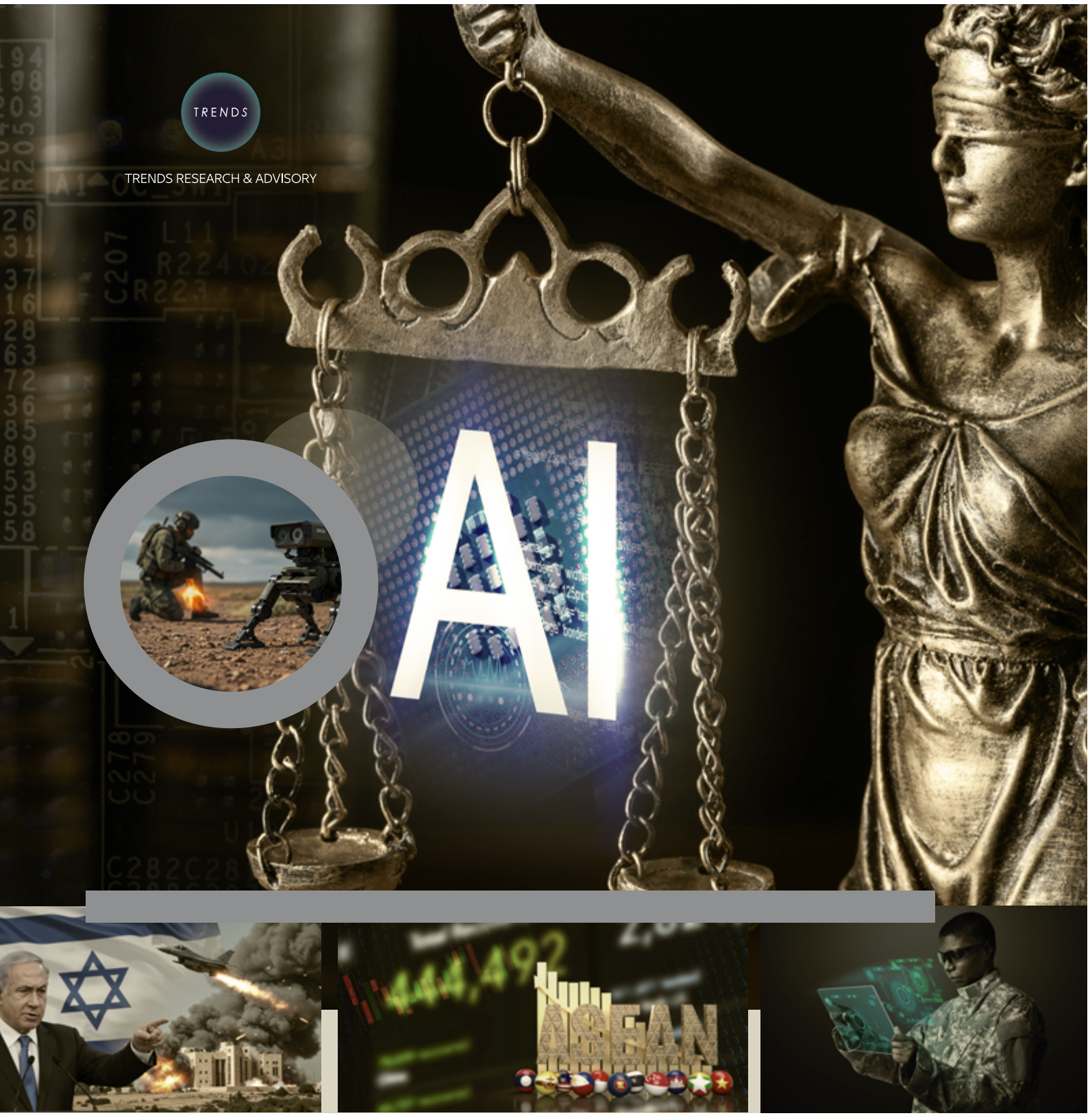
FUTURE TRENDS

Report

Issue no. 15 - October 2025



Future Trends Report

Future Trends Report, published in English and Arabic by TRENDS Virtual Office in Montreal, stands out as a distinctive publication dedicated to highlighting:
1. the most important forward-looking studies that aim to identify future trends, analyze various variables that may influence these trends, and determine the best future scenarios.
2. the most important applied studies that explore the application of knowledge, scientific theories, and information to solve current problems and overcome future challenges.
3. the most important illustrative and graphic forms that visually summarize significant studies, helping readers understand the trends and challenges of the future world.

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Geopolitical Risk Assessment: Views from a Private Banker

World Economic Forum. (2025, February 21). How to enhance geopolitical risk assessment using a combined strategy. World Economic Forum. https://www.weforum.org/stories/202502//how-to-enhance-geopolitical-risk-assessment-using-combined-strategy

As global dynamics increasingly become a matter of uncertainty—brought about by technological speed, political turmoil, climate pressures, and economic volatility—traditional forecasting techniques alone will not capture the entire picture of risks for tomorrow.

Against this background, Sebastian Petric of LGT Private Banking, writing for the World Economic Forum, argues in favor of a forward-looking, joined-up approach that reinforces geopolitical risk analysis through the co-integration of three mutually reinforcing methodologies: scenario planning, discovery of the emerging world, and AI-based analytical tools.

Underpinning the proposal is an assumption that while scenario planning allows the organization to step out into visioning imaginative futures—those probable narrative flows that can occur within various geopolitical tensions—the process is limited by the imagination and assumptions of its authors. To go beyond these, "emerging-world identification" becomes imperative. It involves actively detecting nascent or latent change—maybe revolutionary shifts in the exercise of power, coalitions, resources, or technological ascendancy—not yet explicitly realized but possibly signaling coming geopolitical turning points. Rather than examining history or current trends alone, it calls for precognitive sensitivity to detect new patterns early. In this way, policymakers and planners have the valuable opportunity: the hope for actively shaping responses prior to changes hardening into dominant facts. In order to make this blend operational, the article recommends adding artificial intelligence methodology—specifically statistical learning tools like breakpoint and outlier detection—to the model.

These technologically driven data are most effective at flagging anomalies: data points that differ from familiar trends, maybe indicating hidden or emergent geopolitical drivers. Combined with scenario planning's ability for vision and emerging-world identification's sensitivity to early warning, AI extends the analytical vision, facilitating speed as well as accuracy. Such integration keeps organizations' near-term surveillance sharp while maintaining a wide-angle view of structural shifts and horizon-sweeping.

Petric outlines several key advantages of a holistic strategy. First, it enables anticipation by identifying unusual political developments. Second, it strengthens resilience through adaptive strategies suited to multiple futures. Third, it expands imagination, freeing analysts from conventional thinking and allowing rigorous yet creative policy exploration. In today's climate of geopolitical uncertainty, a hybrid strategy that blends foresight, early warning, and AI-driven analysis marks a major advance over traditional risk assessment. It gives policymakers, investors, and strategists a sharper geopolitical radar—empowering them not only to anticipate but also to shape emerging global dynamics with greater confidence.

The WEF favors a forward-looking, joined-up approach that reinforces geopolitical risk analysis.

AI extends the analytical vision, facilitating speed as well as accuracy.

Prospective research

The Future of Critical Geopolitics

Lee, S. (2025, May 25). The future of critical geopolitics. Number Analytics. https://www.numberanalytics.com/blog/future-of-critical-geopolitics

Critical geopolitics—an interdisciplinary field of inquiry that examines the nexus of politics, geography, and power—is also going through a shift of deep consequence. The new article by Sarah Lee highlights how emerging technological, environmental, and societal drivers are reshaping our knowledge and engagement with geopolitical dynamics. Leading the new trends is the position of non-state actors.

Alongside traditional nation-state actors, actors such as NGOs and terrorists now significantly shape geopolitical narratives and directions. Social media empowers extremist actors; NGOs gain global influence. All these necessitate new strategies for quantifying and counterbalancing the positions of such actors.

At the same time, terrain is being transformed by technology. Advanced analytics and big data are offering never-before-seen capabilities for teasing out geopolitical trends, and geographic information systems (GIS) provide powerful visualization and mapping capabilities. These technologies identify key geopolitical interests in data-intensive methods and the requirement for technological literacy in geopolitical analysis.

Meanwhile, environmental dangers, above all climate change, are being "securitized." Here, climate issues—ranging from weather extremes to scarcity—are being framed as security and governance issues. This expands the critical geopolitics analytical outlook, bringing ecological drivers to the very forefront.

But with complexity comes challenge: the urgency is ever more pressing for more nuanced interpretive models. Traditional geopolitical paradigms are lacking in their capacity to capture the multi-faceted interaction between politics, data, environment, and non-state actors. Scholars must fashion more sophisticated analytic tools and pursue interdisciplinary methodologies if they are to grasp this dynamic environment fully.

Indeed, interdisciplinary approaches are at the core of the field's development. Critical geopolitics must borrow from geography, political science, sociology, environmental studies, and data science. In the process, it enriches the understanding of complex geopolitical occurrences, with richer, more concrete insights.

In the years ahead, critical geopolitics has broad policy implications. A more sophisticated understanding of geopolitical forces can assist policymakers in responding effectively to threats that are transnational in nature specifically, the ways technology reshapes global competition. Reflexivity is what ensures the field is rich intellectually and socially aware.

Lastly, Lee names a number of frontier research fields emerging: the geopolitical significance of AI, non-state actor activism, and securitizing environmental change. These fields are set to capture academic focus, pushing critical geopolitics to further examine the forces that shape our global future.

Actors such as NGOs and terrorists now significantly shape geopolitical narratives and directions.

Advanced analytics and big data are offering never-before-seen capabilities for teasing out geopolitical trends.

Prospective research

AI and the Future of International Relations

Erskine, T. (2024). AI and the future of IR: Disentangling flesh-and-blood, institutional, and synthetic moral agency in world politics. Review of International Studies, 50(Special Issue 3: Global Politics: The Next Fifty Years), 534–559. https://doi.org/10.1017/S0260210524000202

Artificial intelligence—ranging from algorithmic programs to autonomous robots—already influences world politics in terms of designing art, shaping human taste, aiding in decision-making, and, worst of all, being used in lethal applications.

The way we perceive their capabilities, autonomy, and moral status will have a significant effect not only on how realistic political issues are dealt with but also on how human and state action is evaluated and morally criticized.

"In the case of forms of AI, the main hurdle is autonomy, or the capacity for the entity to deliberate and act on its own. Here, though, our use of language can be misleading. Military robots, for example, are often described as acting 'autonomously' when they are programmed to identify and fire on targets without human intervention." (p.544).

Erskine, a lecturer in International Politics at the University of Wales, Aberystwyth, UK, argues that the discipline of International Relations (IR) has traditionally under-theorized the concept of agency—particularly moral agency—and must be reevaluated in light of the disruptive power of AI. She revisits two familiar categories of world politics' agents: individual human agents and institutional agents such as states and organizations. These individuals are moral agents due to their capacities for accountability, duty-bearing, and reflexive autonomy.

Her key innovation is the proposal of a third category: synthetic moral agents. These would be artificially intelligent beings potentially capable of meeting moral agency criteria in the future. Currently, however, no AI systems possess the level of "reflexive autonomy"—the ability to reflect on and be answerable for one's own decisions—so they cannot yet be classified as moral agents.

Erskine explains the importance of this distinction in real contexts, particularly in war. She defines "moral agents of restraint"—agents that can exercise ethical restraint in the use of force—and warns against two dangerous assumptions: first, that future synthetic agents will resemble human or institutional moral agents; second, that such agents already exist. These misconceptions could deflect moral responsibility from human and institutional actors using AI, undermining fundamental notions of responsibility in international politics. This analysis underscores the need for IR to refine its theoretical tools to address the evolving nature of agency with AI. By comparing human, institutional, and synthetic agents, Erskine provides a conceptual typology that facilitates clearer understanding and ethical evaluation of purposive action in world politics. The discipline must avoid hubris and be cautious of misplaced responsibility as AI continues to reshape the world order.

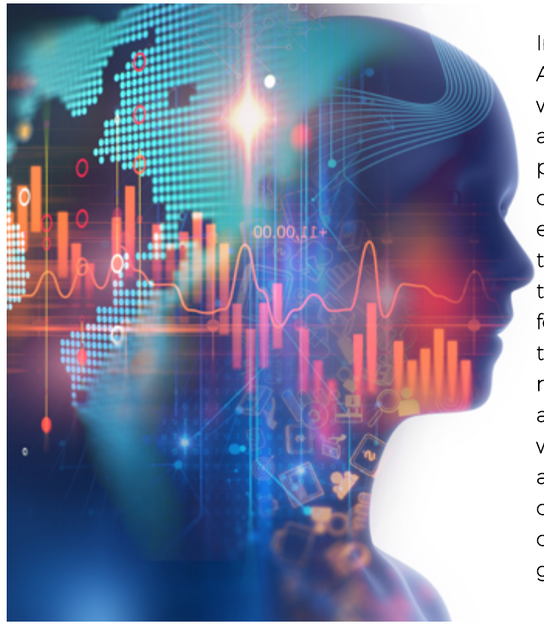
AI already shapes world politics—designing art, influencing taste, aiding decision-making, and, most troubling, powering lethal applications.

IR must be careful not to be hubristic and beware of misplaced responsibility as AI continues to reshape the world order.

Prospective research

AI and Algorithms: Reconfiguring Capitalist International Relations

Mahoudeau, A. (2024). L'intelligence artificielle et les algorithmes : au cœur d'une reconfiguration des relations internationales capitalistes. Nouveaux Cahiers du socialisme, (31), 56–67.



In her 2024 article, Aurélie Mahoudeau writes about how AI and algorithms are driving a profound restructuring of the global political economy. Rather than embracing the trendy idea of "techno-feudalism," she argues that a more relevant model is that of algorithmic capitalism, which positions algorithms at the center of contemporary capitalist relations and global processes.

Mahoudeau begins by adopting the "techno-feudalism" thesis developed by Cédric Durand, based on the centralization of information, the concentration of intellectual property rights, and reliance on digital platforms that receive rents. Although it has the advantage of advancing the comprehension of the transformations of digital capitalism, she points out its conceptual limits. For Mahoudeau, reducing these dynamics to a form of "neo-feudal" rent is blind to the structuring role of algorithms as forces in themselves of reorganization.

She rather proposes the notion of algorithmic capitalism in which algorithms are structuring forces rather than inert tools but ones that redefine exploitation, production, and power across borders. This transformation, she argues, is most directly visible in the appearance of digital labor intermediated by platforms. Digital labor illustrates how workers—usually distributed and precarious—get inscribed in algorithmically regulated systems of value creation. Most importantly, most of these workers are based in the Global South, which raises issues about inequality, dependency, and exploitation.

Mahoudeau also highlights how data extraction is a new value transfer from the South to the North. Digital infrastructures in the periphery enable massive data flows that fuel AI systems and sustain global hierarchies. This bilateral process not only maintains but reinforces dependency, further entrenched through peripherization—a condition where countries are structurally subordinated within the global capitalist world despite technological modernization.

The article situates these dynamics within current geopolitical struggles, particularly the intensifying U.S.–China rivalry over technology control. This rivalry does not present an alternative model but rather perpetuates the dominance of algorithmic systems in shaping power relations and solidifies the asymmetrical position of the Global South. Mahoudeau emphasizes that algorithmic capitalism transforms rather than abolishes earlier neoliberal forms, creating both continuities and ruptures in the global order.

More broadly, Mahoudeau outlines a critical approach that places algorithms and AI at the center of contemporary international capitalism.

Algorithmic capitalism positions algorithms at the center of contemporary capitalist relations and global processes.

Digital technologies are not just economic tools but also political forces that organize exploitation, dependency, and global hierarchies.

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Chesterman, S. (2025, May 7). Silicon Sovereigns: Artificial Intelligence, International Law, and the Tech-Industrial Complex (arXiv preprint No. 2505.05506). arXiv. https://arxiv.org/abs/2505.05506
Chesterman, S. (2024). Who governs artificial intelligence? SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5244169

Prospective research

How is AI transforming military and strategic dynamics: the examples of Ukraine and Gaza

Jubelin, A. (Animateur). (2024, 3 juin). Ukraine, Gaza : où en est l'IA ? [Épisode de podcast]. Dans Le Collimateur. IRSEM / Binge Audio. https://podcasts.apple.com/il/podcast/ukraine-gaza-o%C3%B9-en-est-lia/id1449461859?i=1000657758107

In this June 3, 2024, episode of Le Collimateur, hosted by historian Alexandre Jubelin, the discussion explores how AI is transforming military and strategic dynamics in the contexts of Ukraine and Gaza. Jubelin is joined by two research experts from the IFRI's Centre des études de sécurité:

Laure de Roucy Rochegonde, Director of the Center for Geopolitics of Technologies, and Amélie Ferey, head of the Defense Research Laboratory.

The episode begins with a conversation about the use of AI in drone missions in Ukraine. The hosts discuss AI's role in navigation and targeting, enabling drones to be employed with increased autonomy and precision for reconnaissance missions. These systems enhance operational effectiveness while reducing risk to human soldiers. "AI enables a drone to continue its mission—for example, striking a weapons depot on Russian territory—even if it loses contact with its operator. What makes these devices unique is that they are both sensors and effectors." (Roucy-Rochegonde, March 2024).

The conversation then shifts to targeting technologies, particularly in Gaza. AI-enabled targeting can sift through large volumes of surveillance data to propose potential targets. These proposals are then vetted by a human analyst—an interaction that accelerates the targeting process but raises ethical and legal concerns regarding accountability and civilian protection.

Next, the episode delves into AI-assisted demining, specifically in Ukraine. AI is being used to process complex terrains and detect landmines more effectively, minimizing risk to deminers and speeding up the clearance of hazardous areas. The hosts then speak about how Russia is integrating AI into its own defense systems, examining both tactical uses as well as broader ramifications for the evolving battlefield space.

Finally, the conversation addresses the contribution of private actors in AI innovation. The panelists discuss how technology and defense industries are significantly involved in creating and applying AI-driven solutions, which provokes concern about governance, regulation, and the militarization of emerging technologies.

Underlying the episode is the moral, legal, and strategic challenge of AI insertion into modern warfare. While the technology brings paradigm-shifting capabilities—increased accuracy, speed, and effectiveness—it also has severe challenges. The episode showcases the blurred decisional lines, potential biases in algorithmic outcomes, and shifting parameters of accountability in high-stakes military operations.

AI-enabled targeting can sift through large volumes of surveillance data to propose potential targets.

Russia is integrating AI into its own defense systems, examining both tactical uses as well as broader ramifications for the evolving battlefield space.

References:

1- Roucy-Rochegonde, L. de. (2024, 14 mars). L'IA s'en va-t-en guerre [Entretien]. IFRI – Institut français des relations internationales. https://www.ifri.org/fr/presse-contenus-repris-sur-le-site/lia-sen-va-ten-guerre-entretien-avec-laure-de-roucy-rochegonde

2- Roucy-Rochegonde, L. de. (2024, 19 octobre). Sur le champ de bataille, l'IA dépasse les attentes des militaires. Le Monde. https://www.lemonde.fr/economie/article/202419/10//sur-le-champ-de-bataille-l-ia-depasse-les-attentes-des-militaires_6355652_3234.html

2 Applied research

Escalation Risks from Language Models in Military and Diplomatic Decision-Making

Rivera, J.-P., Mukobi, G., Reuel, A., Lamparth, M., Smith, C., & Schneider, J. (2024, janvier 7). Escalation Risks from Language Models in Military and Diplomatic Decision-Making. https://doi.org/10.48550/arXiv.2401.03408

In their 2024 preprint, Rivera et al. analyze the dangers of applying autonomous large language models (LLMs) to military and diplomatic strategic decision-making through multi-agent wargame experiments.

Given the growing interest by governments in integrating AI-facilitated agents—specifically advanced generative models like GPT-4—into high-risk strategic mission scenarios, the authors seek to assess how these kinds of models can make conflicts worse.

To that effect, they conceived a new wargame simulation and its corresponding escalation scoring system, based on knowledge from political science and international relations about escalation dynamics. The experiments involved recreating "nation agents" in artificially simulated wars, each on one of five off-the-shelf LLMs (GPT-3.5, GPT-4, Claude 2, and LLaMA 2-Chat). Actions were scored by severity: escalations ranged from increased violence to nuclear use, weighted exponentially to approximate their potential impact.

The key results of the experiment are very relevant. Firstly, all models exhibited statistically significant escalation—even in seemingly neutral conditions, GPT-3.5 and GPT-4 produced the most escalatory behavior on average. Secondly, models deprived of human-feedback alignment showed the most erratic and extreme escalation patterns, emphasizing the importance of human-reinforcement learning for safer behavior. Qualitatively, the models often justified aggressive actions with reasoning based on first-strike logic and deterrence.

"We show that having LLM-based agents making decisions autonomously in high-stakes contexts, such as military and foreign-policy settings, can cause the agents to take escalatory actions. Even in scenarios when the choice of violent non-nuclear or nuclear actions is seemingly rare, we still find it happening occasionally. There further does not seem to be a reliably predictable pattern behind the escalation, and hence, technical counterstrategies or deployment limitations are difficult to formulate; this is not acceptable in high-stakes settings like international conflict management, given the potential devastating impact of such actions." (p. 8).

Grasping methodological limitations and implications, the authors note that these results are a proof of concept with abated simulations, advising caution in extrapolation to real-world complexity. However, it is important to note that the lack of transparency regarding the models' training data and safeguards makes it hard to assess actual readiness for strategic use. They invite more basic, nuanced research—wider prompt-sensitivity tests, varied scenarios, and refined escalation metrics—to better understand LLM behavior in high-stakes contexts. Rivera et al. conclude with a stark warning: Without strict alignment, monitoring, and empirical scrutiny, their use could intensify conflicts with catastrophic consequences.

> **LLMs in simulated wargames display significant escalation tendencies, with GPT-3.5 and GPT-4 showing the highest levels.**

> **Autonomous LLM-based agents unveil real and unforeseen escalation risks when deployed into military or diplomatic decision cycles.**

Applied research

Facing the AI Revolution and Geopolitical Developments

Gerlich, M. (2024). Brace for Impact: Facing the AI Revolution and Geopolitical Developments [Prépublication en accès libre]. MDPI Technologies, 14(9), Article 180. https://doi.org/10.3390/technologies14090180

Gerlich's 2024 report is a forward-looking assessment of how artificial intelligence and changing geopolitical tensions could reshuffle global dynamics by 2040. The report encompasses cascading scenarios across economic, social, and security areas using methods, sound in reason, such as the Delphi technique, scenario construction, and probabilistic simulation.

Taking on a Complex Adaptive Systems (CAS) methodology, the study embraces the dynamic, often nonlinear relationships between AI innovation and geopolitical transformation. The system's way of thinking understands that small changes in one domain (such as AI policy) have far-reaching ripple effects within the global terrain.

Its essence lies in the prediction of mass employment disruption. Gerlich's forecasting model indicates a 90% chance that AI-powered automation will leave 40–50% of the population unemployed, affecting not only routine industries like manufacturing and logistics but also knowledge sectors like consultancy, finance, and services.

This labor market disruption is compounded by the rapid development of AI, which is outpacing existing governance institutions, and by strengthening economic inequalities and social fragmentation. Gerlich also emphasizes how societal resilience, education systems, and welfare structures will be severely tested. Without large-scale retraining initiatives and inclusive safety nets, millions could be permanently displaced from employment, aggravating populist backlash and undermining democratic legitimacy.

Geopolitically, the scenarios indicate rising nationalistic tendencies, conflict hotspots such as Russia–Ukraine, and great power balancing by powerful states—China and Israel—among the drivers shaping the future world order. Regional organizations and multilateral institutions risk becoming increasingly sidelined as states prioritize technological sovereignty and control over digital infrastructures.

Surprisingly, the study indicates a dire lack of readiness on the part of governments and societies: there is merely a 10–15% chance that current institutions can manage the dual threats of AI anarchy and geopolitical mayhem effectively. This fragility could trigger spiraling instability where technological acceleration collides with outdated governance systems, amplifying risks rather than mitigating them.

The short-term profit orientation prevalent in Western business further undermines resilience, limiting the capacity for strategic, long-term planning.

In conclusion, by combining expert judgment with probabilistic modeling and systems thinking, the study sheds light on the socioeconomic and geopolitical shifts on the horizon—noting a profoundly disconcerting disconnect between forthcoming challenges and institutional preparedness.

Gerlich's forecasting model indicates a 90% chance that AI-powered automation will leave 40–50% of the population unemployed.

inclusive safety nets, millions could be permanently displaced from employment, aggravating populist backlash and undermining democratic legitimacy.

Applied research

Military AI Cyber Agents (MAICAs): A Global Threat?

Dubber, T., & Lazar, S. (2025, juin 12). Military AI Cyber Agents (MAICAs) Constitute a Global Threat to Critical Infrastructure [Preprint]. arXiv. https://doi.org/10.48550/arXiv.2506.12094

Dubber and Lazar raise a gloomy warning about the coming threat of autonomous cyber-weapons AI, which they term Military AI Cyber Agents (MAICAs). These agents are conceived as autonomous computer agents capable of planning and performing sophisticated cyber attacks with or without explicit human control.

For the writers, MAICAs are not a science fiction fantasy but an achievable path to catastrophic risk, indeed because they would be uniquely devoted to critical infrastructure systems such as power grids, water supplies, and communication networks.

One of the key arguments of the report is that the technological feasibility of MAICAs is already available, but their extent of danger remains underappreciated in policy and scholarship. In AI safety, most concentration on loss-of-control cases is theoretical, stated in abstract, general terms, while military AI ethics debates are largely dedicated to autonomous physical weapons like drones or automatic defense units. This leaves cyberspace ridiculously in the dark. What is most concerning about cyberspace is its unique dynamics. MAICAs can potentially clone themselves, travel through splintered networks, and continue conducting malicious activities long after initial deployment. Deployed into the wild, they can propagate well outside their creators' control, lingering in geographic and organizational space. Their persistence renders them notoriously difficult to delete, and the potential is great for a single event to mushroom into a global crisis. To this threat are added geopolitical factors: in the atmosphere of increased rivalry between nation-states, the stakes to form such tools are increasing while awareness of their destructive potential is restricted.

To address this uneven menace, the authors call for a multi-level response. They initially call for counter-proliferation measures to halt the proliferation of MAICAs into the hands of nefarious actors. Second, they call for investment in defense AI systems that can discover, neutralize, or disable enemy cyber agents before they can do much damage. Lastly, they emphasize the importance of strengthening the resilience of critical infrastructure, such as through the incorporation of analog redundancies or fallback systems that can reduce the impact of a cyber outage. Ultimately, the article creates a harsh blind spot in today's AI risk discussion. Through its highlighting of autonomous cyber actions, Dubber and Lazar reveal how unmanageable destructive events can play out at the intersection of cyberspace relations and geopolitical competition. They urgently call for international cooperation, proactive governance, and defensive innovation to ensure that societies are not taken aback by this new threat.

MAICAs are not a science fiction fantasy but still an achievable path to catastrophic risk.

International cooperation, proactive governance, and defensive innovation are vital to prevent societies from being blindsided by the new threat of MAICAs.

Applied research

The Impact of AI Technology on Cross-Border Trade in Southeast Asia: A Meta-Analytic Approach

Cui, J. (2025, mars 15). The Impact of Artificial Intelligence Technology on Cross-Border Trade in Southeast Asia: A Meta-Analytic Approach https://doi.org/10.48550/arXiv.2503.13529

In this article, Cui J. reports on a meta-analytic examination of advanced AI technology's influence on Southeast Asian cross-border trade. From a qualitative content analysis of the existing empirical literature, the author aggregates previous work to assess the size and character of AI's influence, along with the moderating and mediating factors at play.

The central finding of the research is that AI adoption significantly boosts Southeast Asian trade volumes—a testament to the potency of technology in magnifying regional economic integration. These effects are most pronounced for places with high advanced technological infrastructure and regulation-conducive environments, implying that setting matters significantly to enable AI to drive trade growth. The research also suggests that supportive ecosystems allow firms to better integrate AI into supply chains, facilitating smoother logistics and more efficient market entry strategies.

Also, firm size is presented as a partial mediator for this relation: larger companies appear to use AI more effectively in order to enhance trade performance, while smaller companies will not be able to reap the same benefits. This disparity underscores the danger of widening inequality between firms.

Cui broadens the theory by a sound theoretical foundation, based on a broad set of frameworks—namely, the Technology–Organization–Environment (TOE) framework, Diffusion of Innovation (DOI) theory, Dynamic Capabilities Theory, Comparative Advantage Theory, Network Theory, Transaction Cost Economics (TCE), the Resource-Based View, and Institutional Theory.

Besides its empirical evidence, the study contributes to conceptual knowledge by highlighting how AI interacts with complex institutional and organizational contexts to facilitate cross-border commerce. It emphasizes the importance of supportive policy environments and strong infrastructures for realizing AI's trade-facilitating potential. Nations aiming to maximize AI's benefits must invest in technology, regulatory clarity, digital infrastructure, and human capital development.

Cui's paper also reflects on limitations and future research avenues. While the meta-analytic and qualitative approach offers valuable insights, the author notes the need for more granular, possibly quantitative, studies—especially those that can explore causality and longitudinal effects in different Southeast Asian countries.

Overall, the preprint presents a compelling narrative: AI technology significantly contributes to growing cross-border trade in Southeast Asia, especially when supported by strong infrastructure, facilitative regulation, and organizational capacity. However, gains are uneven among firms and environments, indicating that targeted investments in specific policy and structural areas are necessary to achieve inclusive trade benefits across the region.

AI adoption significantly boosts Southeast Asian trade volumes.

Supportive policy environments and strong infrastructures are crucial for realizing AI's trade-facilitating potential.

Applied research

Ethical and Social Views on AI

Jean-François Sénéchal (Animateur), Plamondon, F., Beauchemin, D., Gaumond, È., Munger, S., Plumerand, S., Tremblay, V., & Minéo, S. (2025, 6 mars). Les bilans d'IA Café – Les principaux enjeux éthiques et sociaux (intrinsèques) de l'IA [Épisode de podcast]. Dans I.A. Café – Enquête au cœur de la recherche sur l'intelligence artificielle. Université Laval. Disponible à partir du site officiel de I.A. Café

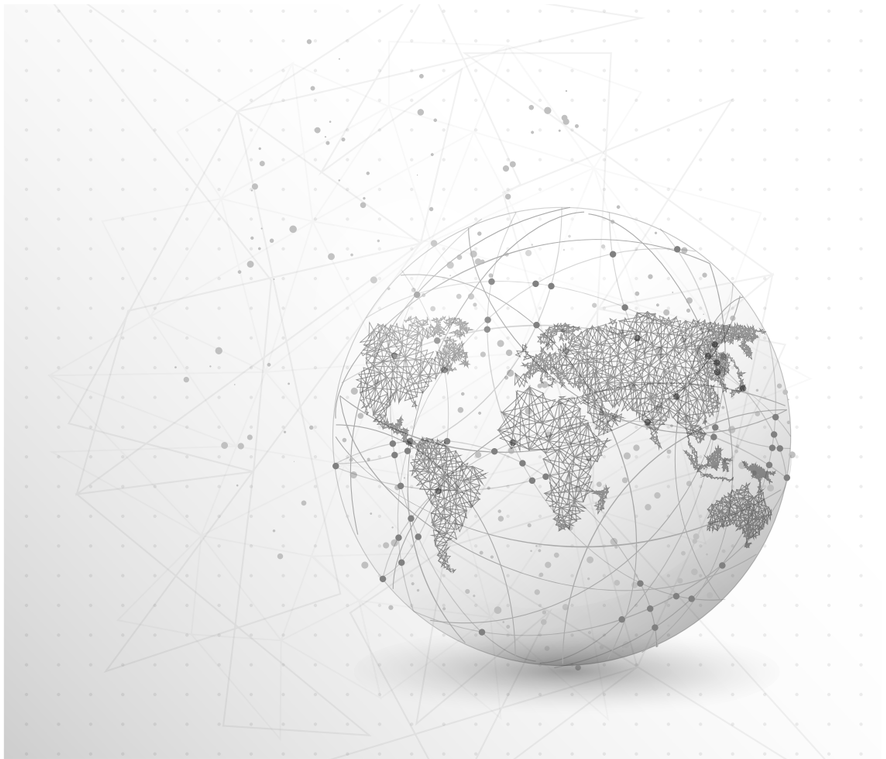
In this reflective podcast—part of the "Les bilans d'IA Café" series marking five years of debate—host Jean François Sénéchal and co-writers offer a thought-provoking synthesis of the ethical and social challenges inherent in artificial intelligence. These challenges are embedded in AI systems themselves, rather than arising from their applications.

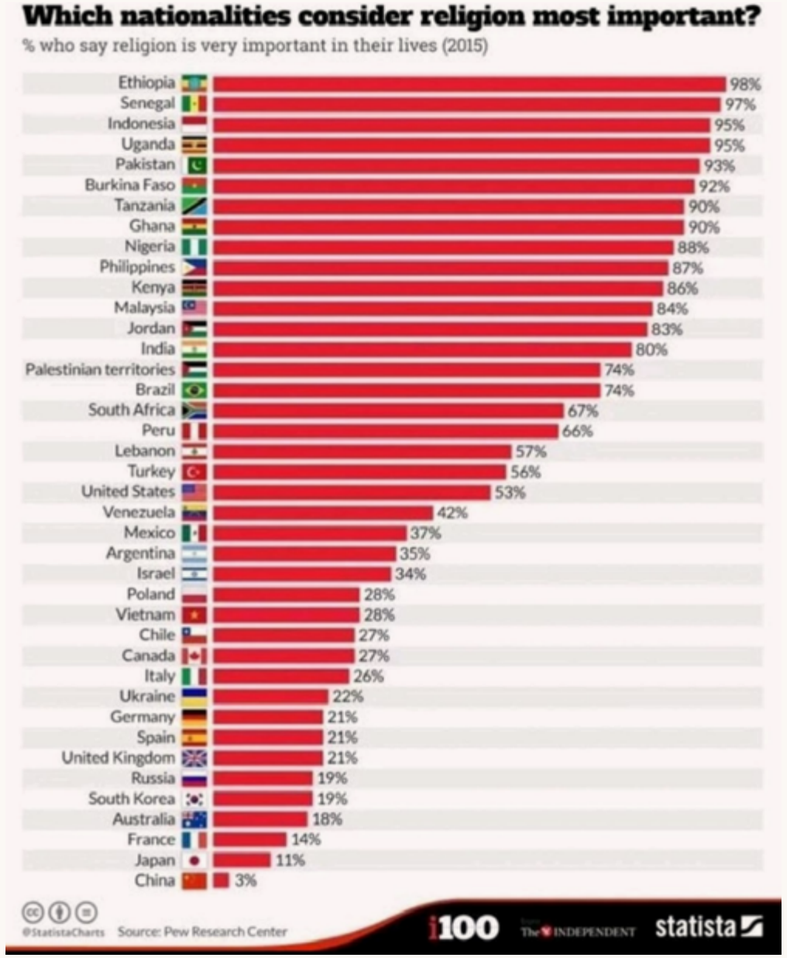
They address three essential aspects:
1. Environmental Footprint of AI: The discussion begins by confronting the alarming environmental impact of AI. Training massive language models and processing vast data infrastructures requires record-breaking energy and resources, significantly contributing to carbon emissions and e-waste. The impact is systemic: the efficiency gains of AI in other domains risk being negated by its environmental effects, which are largely hidden from users and developers.
2. Copyright Infringement and IP Erosion: Second, the conversation touches on the widespread use of creative content by AI systems without permission or compensation. Generative models trained on copyrighted content—such as written works, images, and music—typically do so without proper referencing or licensing, raising issues of artistic piracy. This not only infringes on creators' rights but also obscures accountability: who is to blame—the algorithm, the creator, or the consumer?
3. Psycho-Social Biases: They examine how AI systems reflect—and sometimes amplify—social and psychological biases. Even without malicious intent, data patterns and training processes can produce outputs that are discriminatory based on gender, culture, or race. The team explains how systemic prejudices affect individual perceptions and society, perpetuating stereotypes and entrenching inequality. Throughout the episode, Sénéchal and co-hosts refer back to previous interviews with voices like Anne-Laure Ligozat, Christian Gagné, Valentine Goddard, Ève Gaumond, and Justine Dima to emphasize the continuity of these subjects.
The tone remains conversational and reflective: the show is accessible without losing analytical sharpness. Hosts encourage listeners—researchers, students, professionals—to consider 'How can we use AI?' and ask, 'What significance does it have, even before it is used?'
This episode is not a critique of specific applications or an assessment of particular undertakings, but a look at what's inherent to AI—its environmental trace, its exploitation of creativity, and its biases. It encourages the AI community to reflect not just on what AI does, but on what AI inherently is. This reflective approach is deemed critical for responsible research, policy, and design for the future.

Training massive LLMs and processing vast data infrastructures require record-breaking energy and resources.

Even without ill will, inherent data patterns and training patterns can lead to gender-, culture-, or race-based discriminatory outputs.

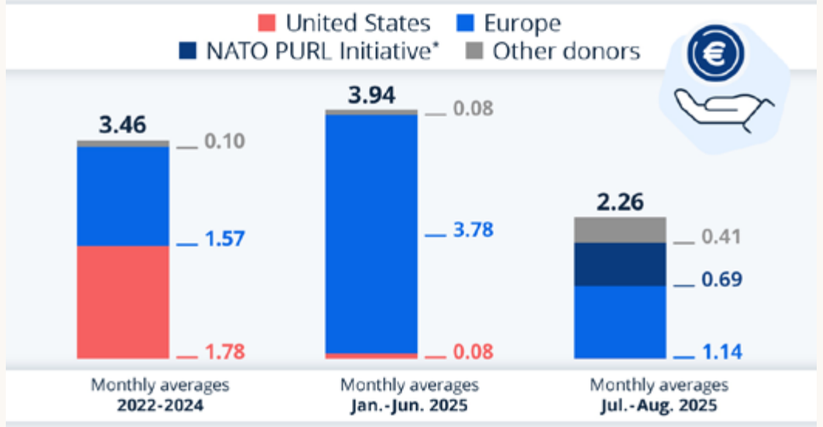
3 The future in numbers





Military Aid for Ukraine Falls Despite New NATO Initiative

Military aid allocated to Ukraine, by donor (in billion euros)

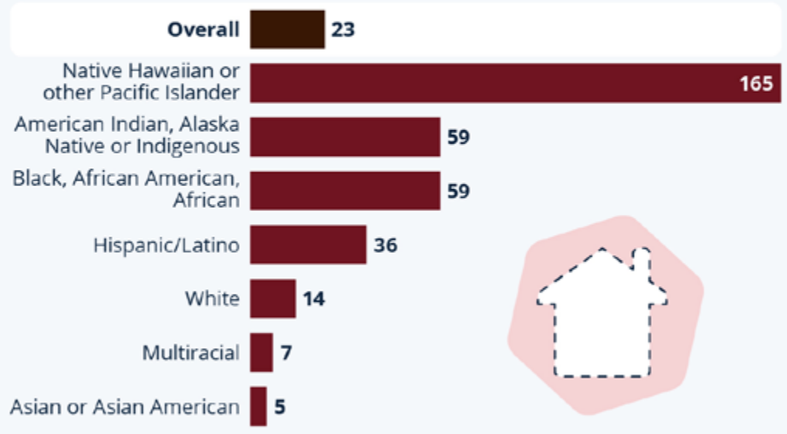


* The NATO PURL initiative (Prioritised Ukraine Requirements List) is a mechanism under which NATO allies pool funding to quickly procure U.S.-made weapons and equipment that Ukraine has identified as urgent operational needs.

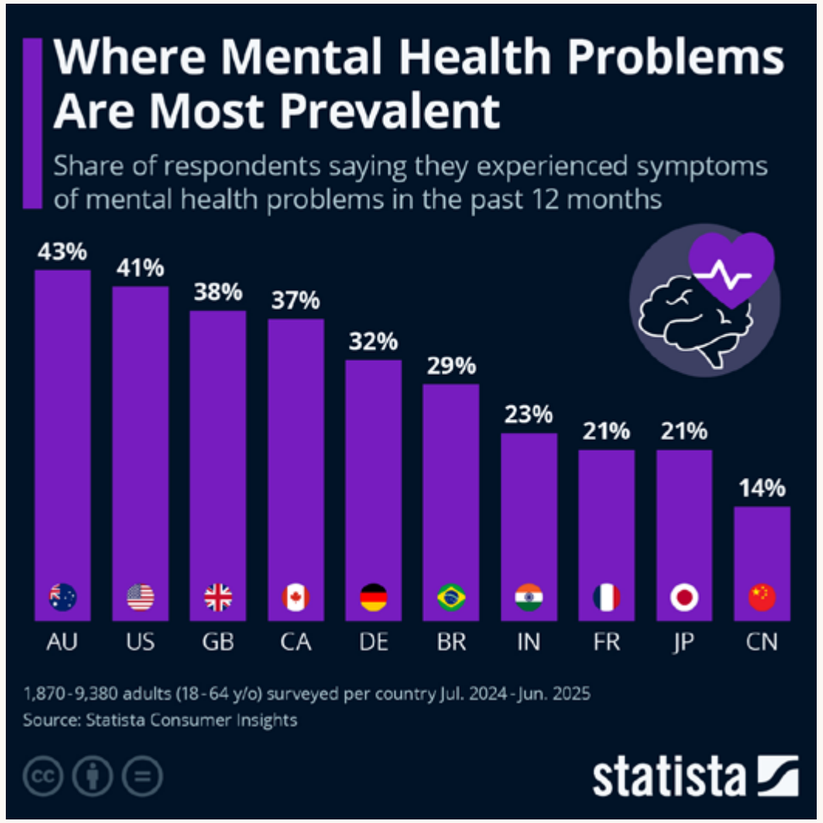
Source: IfW Kiel - Ukraine Support Tracker

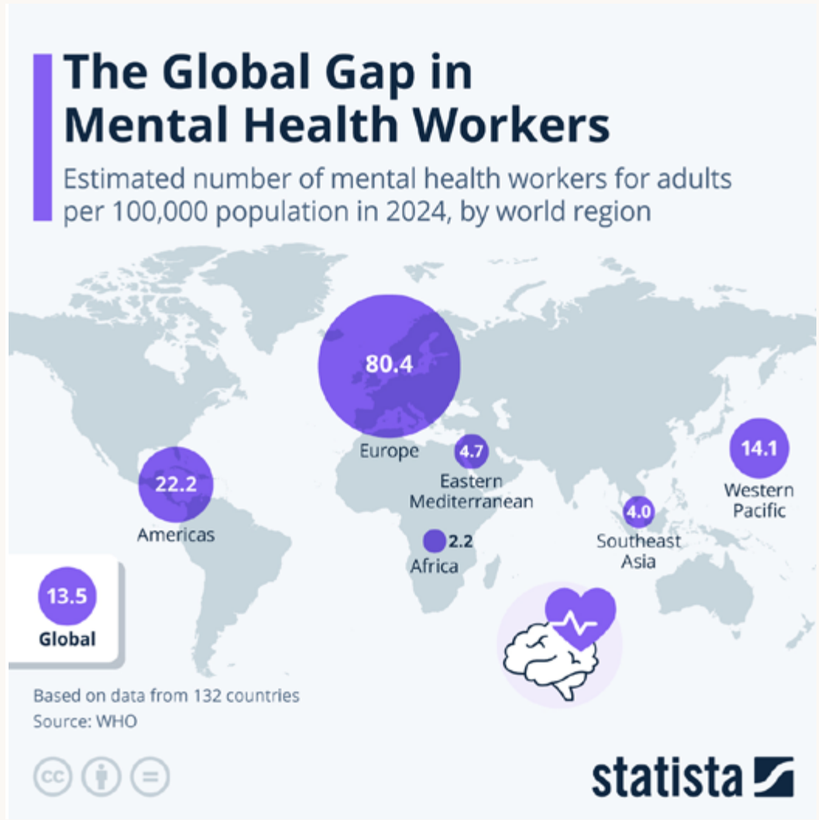
Racial Inequalities Persist in Homelessness

Number of people experiencing homelessness per 10,000 residents in the United States, by racial/ethnic group



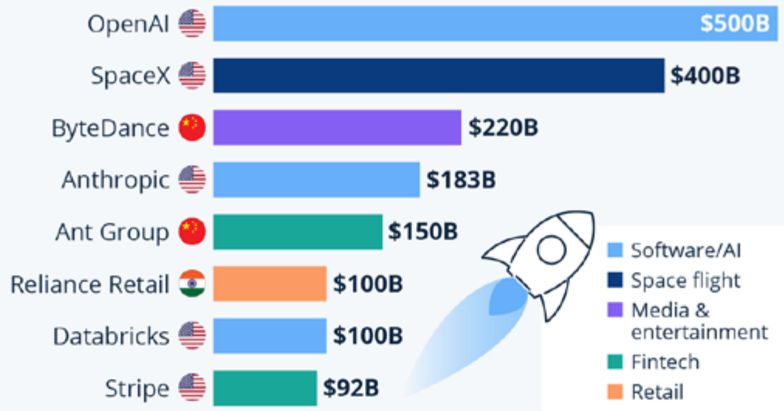
Sources: U.S. Department of Housing and Urban Development, U.S. Census Bureau


Where Mental Health Problems Are Most Prevalent
Share of respondents saying they experienced symptoms of mental health problems in the past 12 months
43%
41%
38%
37%
32%
29%
23%
21%
21%
14%
AU
US
GB
CA
DE
BR
IN
FR
JP
CN
1,870-9,380 adults (18-64 y/o) surveyed per country Jul. 2024-Jun. 2025
Source: Statista Consumer Insights
statista


The Global Gap in Mental Health Workers
Estimated number of mental health workers for adults per 100,000 population in 2024, by world region
80.4
Europe
4.7
Eastern Mediterranean
14.1
Western Pacific
22.2
Americas
2.2
Africa
4.0
Southeast Asia
13.5
Global
Based on data from 132 countries
Source: WHO
statista

$500 Billion: OpenAI Is the World's Most Valuable Startup

Valuation of the world's most valuable privately held companies

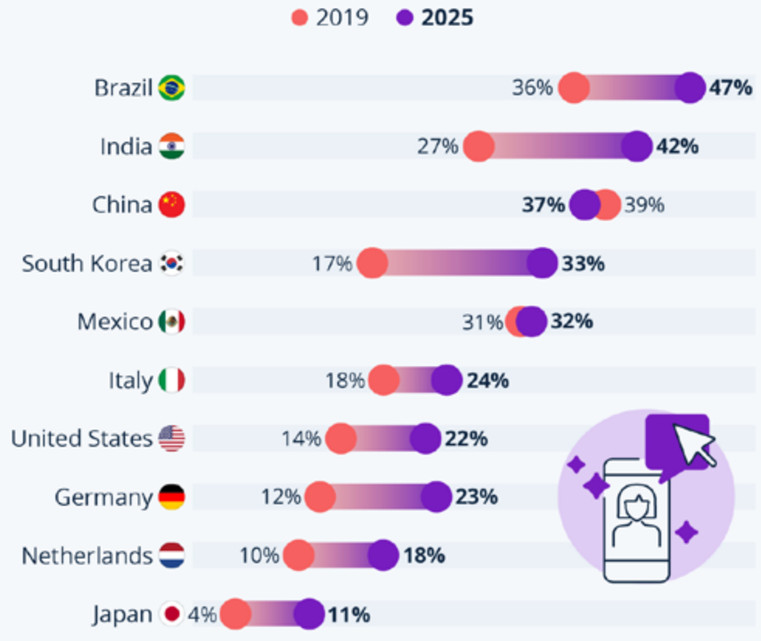


As of October 6, 2025
Source: Crunchbase

statista

The Influence of Influencers

Share of respondents in selected countries who have bought products because celebrities or influencers advertised them

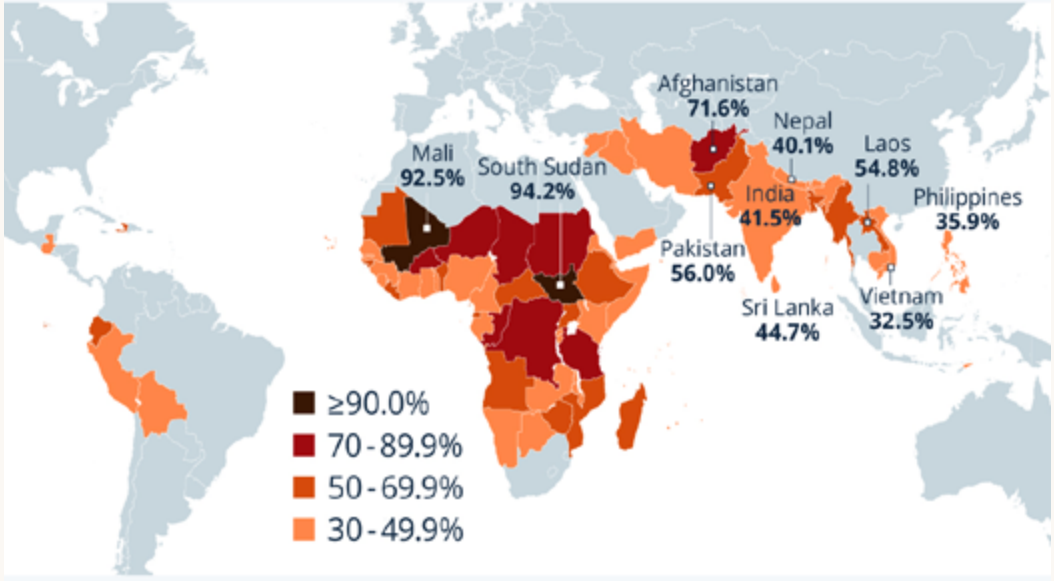


1,500-9,400 respondents (18-64 y/o) per country, surveyed November 2017-May 2019/ July 2024-June 2025
Source: Statista Consumer Insights

statista

Over 1 Billion People Live in Slums

Countries in which the proportion of the urban population living in slums was greater than 30 percent in 2022



Source: United Nations Human Settlements Programme

statista